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The Effect of Traditional Jump Rope Games on the Long Jump Ability of Fifth-Grade Students at SD Negeri 121 Palembang

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh permainan tradisional lompat tali terhadap kemampuan lompat jauh siswa di SD Negeri 121 Palembang. Penelitian menggunakan metode kuantitatif dengan desain eksperimen satu kelompok pre-test dan post-test. Populasi penelitian adalah seluruh siswa kelas V yang berjumlah 85, dengan sampel sebanyak 30 siswa dari kelas V.C. Pengumpulan data dilakukan melalui pre-test sebelum perlakuan dan post-test setelah perlakuan. Hasil penelitian menunjukkan rata-rata pre-test sebesar 57,50 dan rata-rata post-test sebesar 82,92. Berdasarkan uji normalitas, data kemampuan lompat jauh siswa terdistribusi normal, dengan hasil uji Shapiro-Wilk 0,122 untuk pre-test dan 0,154 untuk post-test, keduanya lebih besar dari 0,05. Hasil uji t menunjukkan nilai Sig. (2-tailed) 0,000, yang menunjukkan adanya peningkatan kemampuan lompat jauh siswa secara signifikan setelah diberikan perlakuan permainan tradisional lompat tali.

Kata kunci: *Permainan Tradisional Lompat Tali, Kemampuan Lompat Jauh, Pendidikan Jasmani, Siswa Sekolah Dasar, Studi Eksperimen*

Abstract

This study aimed to examine the effect of traditional rope jumping games on the long jump performance of students at SD Negeri 121 Palembang. The research employed a quantitative experimental design using a one-group pre-test and post-test approach. The population consisted of all fifth-grade students, totaling 85, while the sample included 30 students from class V.C. Data collection involved a pre-test before the treatment and a post-test after the treatment. The results showed an average pre-test score of 57.50 and a post-test average of 82.92. Normality testing indicated that the data were normally distributed, with Shapiro-Wilk results of 0.122 for the pre-test and 0.154 for the post-test, both greater than 0.05. The t-test revealed a Sig. (2-tailed) value of 0.000, indicating a statistically significant improvement in students' long jump ability following the traditional rope jumping game intervention.

Keywords: Traditional Rope Jumping, Long Jump Ability, Physical Education, Elementary School Students, Experimental Study

1. INTRODUCTION

Physical education is a structured learning process that uses physical activity to enhance students' fitness, motor skills, knowledge of movement, and positive attitudes toward physical activity. Education itself is a deliberate and planned effort to create a learning environment that enables students to develop their potential, including spiritual strength, self-discipline, personality, intelligence, morals, and skills necessary for themselves and society (Law No. 20 of 2003). Physical education promotes stronger, healthier, and more resilient students and is considered an integral part of general education, as it supports the balanced development of motor, cognitive, and affective skills (Lou, Natal, & Bile, 2022). At the elementary level, physical education focuses on developing basic motor skills, including manipulative movements using hands, feet, and other body parts to control or interact with

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objects (Widya et al., 2024). Physical education is essential for enhancing students' motor skills, physical fitness, and coordination (Anggraini, Karyanto, & Wadiatul Khairati, 2018). One effective way to develop these abilities is through traditional games, which not only provide enjoyment but also help improve strength, balance, agility, and overall motor coordination (Kristina et al., 2025). Among traditional activities, jump rope has been identified as a valuable exercise for promoting gross motor development and improving locomotor skills, including the ability to perform long jumps (Kurnia, Hidayat, & Kusumawardani, 2025).

Play is an essential part of childhood, fostering joy, social interaction, cognitive growth, and confidence. Children naturally spend significant time playing with peers, which benefits their physical, motor, social, language, and emotional development (Thobroni in Megawati, 2023). However, modern trends have led to a decline in traditional games, which historically developed balance, agility, coordination, and cognitive-emotional skills (Solehah & Gumiandari, 2023). Traditional rope jumping games, in particular, can improve courage, activity levels, balance, strength, and gross motor skills, making them suitable for elementary school students due to their interactive and enjoyable nature (Prabunita et al., 2025). Traditional games are also cultural heritage, passed down orally through generations, but their prevalence has decreased due to modern media such as television and smartphones, leading children to spend more time playing alone (Susanti, Muslihin, & Sumardi, 2021). Integrating traditional games in physical education supports cultural preservation and provides opportunities to develop problem-solving, cooperation, and physical skills (Jujur, Widya, & Riyoko, 2022; Widya et al., 2024).

In the context of Indonesian schools, long jump is a fundamental athletics skill commonly taught in elementary education to develop students' physical capabilities and motor skills (Kristina et al., 2025). However, observations at SD Negeri 121 Palembang show that some fifth-grade students still face difficulties achieving optimal long jump performance due to limitations in leg strength, coordination, and practice frequency. Traditional jump rope games can serve as an interactive and enjoyable approach to enhance these skills while fostering social interaction, confidence, and active participation (Anggraini, Karyanto, & Wadiatul Khairati, 2018; Kurnia, Hidayat, & Kusumawardani, 2025).

Considering these points, it is crucial to investigate the influence of traditional jump rope games on the long jump performance of fifth-grade students. This study aims to provide evidence that integrating traditional games into physical education can effectively improve students' motor abilities, learning outcomes, and engagement, contributing to a higher quality of school physical education programs (Wijaya, Oktaviani, & Setiawan, 2023). In athletics, the long jump is a sport requiring students to run, jump, and land as far as possible, with key phases including approach, take-off, flight, and landing. Leg muscle strength is essential for optimal jump distance (Teguh, 2019; Achmad Yani, 2022; Nasution in Ritonga, 2024; Syahrifuddin in Sumardani, 2022). Observations at SD Negeri 121 Palembang indicated that fifth-grade students still face challenges in performing these phases due to insufficient leg strength and incomplete skill mastery.

Previous studies indicate that repeated jumping exercises, such as jump rope, enhance leg strength, balance, and motor control, which are critical for sports requiring explosive movements like the long jump (Andini, Syamsudin, & Ulansari, 2022). Incorporating culturally meaningful traditional games into school-based physical education can also boost students' motivation, engagement, and active participation in learning activities (Wijaya, Oktaviani, & Setiawan, 2023). Several studies have demonstrated that traditional jump rope games significantly enhance gross motor skills and locomotor abilities in children. For example, Anggraini et al. (2018) found a significant improvement in jumping motor skills

after jump rope interventions in early childhood. Likewise, traditional games such as jump rope and engklek positively affected long jump performance in primary school students (Kristina et al., 2025). This study aims to address these gaps by implementing traditional rope jumping games as an intervention to enhance long jump performance. The games are expected to improve leg strength, coordination, and balance while providing a fun and culturally relevant learning experience. A pre-test and post-test design will measure the effect of the intervention, helping teachers integrate traditional games into physical education while improving students' long jump abilities.

2. METHOD

Research methodology refers to the scientific procedures used to collect data with specific objectives (Sugiyono, 2023, p. 2). In this study, the researcher employed an experimental method with a one-group pre-test and post-test design. Experimental research aims to determine the effect of an independent variable (treatment) on a dependent variable (outcome) under controlled conditions (Sugiyono, 2021, p. 127). Pre-experimental research using a one-group pre-test and post-test design is commonly applied in educational intervention studies to evaluate the effect of a treatment on an outcome without a control group (Sriwati et al., 2024; Nurjannah et al., 2021; Ulvatiya, Permatasari, & Sarassanti, 2019).

This design measures the dependent variable before and after the treatment to identify any changes attributable to the intervention. The research design can be illustrated as follows:

O_1 X O_2

Where:

O_1 = Pre-test score (before treatment)

X = Treatment (traditional rope jumping game)

O_2 =Post-test score (after treatment)

(Source: Sugiyono, 2019)

This study was conducted to investigate whether traditional rope jumping games affect the long jump ability of fifth-grade students at SD Negeri 121 Palembang. The one-group pre-test and post-test design was used to measure students' performance before and after the intervention.

The research procedure consisted of three steps:

1. Pre-test: The purpose of the pre-test was to assess students' initial long jump ability before the intervention. Selected students performed the squat-style long jump three times, and the best result was recorded.
2. Treatment (Intervention): After the pre-test, students received training through the traditional rope jumping game.
3. Post-test: Following the intervention, students repeated the squat-style long jump three times, and the longest jump distance was recorded as the post-test result.

Several studies indicate that traditional and organized physical activities, such as jump rope games, contribute to the improvement of children's gross motor skills, coordination, strength, and agility. Anggraini et al. (2018) and Andini et al. (2022) found enhancements in motor coordination, while Puspitasari and Harahap (2022) and Jafarzadeh and Azizi (2021) reported improvements in leg strength, speed, and agility. Lopez- Vicente and Ximenez (2020) emphasized the positive effects on cardiovascular fitness and overall motor performance. Furthermore, Kamal and Usman (2023) stressed the importance of structured physical activity for developing gross motor skills, and Kubayi and Toriola (2019) noted that stronger motor skills encourage greater participation in physical activities. Traditional games such as jump rope and hopscotch have also been proven effective in supporting elementary students' physical development (Kurnia et al., 2025; Kristina et al., 2025).

In this study, data collection was conducted using pre-tests and post-tests to evaluate students' long jump performance, complemented by documentation through photos and videos, in accordance with the lesson plan (RPP) (Sugiyono, 2023, p. 296). Valid measurement instruments are essential to ensure accurate assessment of effectiveness (Miller & Sternberg, 2021). The instruments used included the field, measuring tape, whistle, take-off board, rope, and additional markers such as flags or tape to indicate jump distance and landing points (Widiastuti, 2019; Ismaryati, Sarwono, & Muhyi, 2018).

Previous research supports the use of a one-group pre-test and post-test experimental design to assess intervention effects. Sriwati et al. (2024) reported improvements in students' academic literacy, Nurjannah et al., (2021) observed gains in fifth-grade science learning outcomes, and Ulvatiya et al. (2019) found enhanced performance in natural science after the treatment. Collectively, these studies demonstrate that this design is effective for detecting changes in dependent variables caused by interventions, offering a practical method for evaluating classroom or extracurricular programs (Sriwati et al., 2024; Nurjannah et al., 2021; Ulvatiya et al., 2019). Hypothesis formulation serves as a tentative answer to the research problem (Sugiyono, 2023, p. 219). The hypotheses for this study were as follows:

H_o: Traditional rope jumping games have no effect on the long jump ability of fifth-grade students at SD Negeri 121 Palembang.

H_a: Traditional rope jumping games positively affect the long jump ability of fifth-grade students at SD Negeri 121 Palembang.

The null hypothesis (H_o) is rejected if the t-test results show that the calculated t-value exceeds the critical t-value from the table.

3. RESULT & DISCUSSION

Result

The research data were obtained from the implementation of the study involving 30 students from class V.C at SD Negeri 121 Palembang. The data consisted of assessments of students' long jump psychomotor skills, collected through pre-test and post-test measurements. After the data were gathered, they were systematically analyzed to determine the effects of the intervention.

Table 1. *Descriptive Statistics*

N	Valid	30	30
	Missing	0	0
Mean		57.50	82.92
Std. Error of Mean		1.997	2.180
Median		56.25	81.25
Mode		50	81[a]
Std. Deviation		10.937	11.942
Variance		119.612	142.601
Skewness		-.079	-.250
Std. Error of Skewness		.427	.427
Kurtosis		-.922	-.571
Std. Error of Kurtosis		.833	.833
Range		38	44
Minimum		38	56
Maximum		75	100
Sum		1725	2488

The following is the initial test data (pre-test) of students' long jump before being given treatment with the traditional rope jumping game, namely in the following table:

Table 2. *Frequency Distribution (Pretest)*

Pretest

Frequency			Percent	Valid Percent	Cumulative Percent
Valid	38	2	6.7	6.7	6.7
	44	3	10.0	10.0	16.7
	50	7	23.3	23.3	40.0
	56	4	13.3	13.3	53.3
	63	6	20.0	20.0	73.3
	69	5	16.7	16.7	90.0
	75	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

Table 3. *Fequency Distribution (Posttest)*

Frequency			Percent	Valid Percent	Cumulative Percent
Valid	56	1	3.3	3.3	3.3
	63	1	3.3	3.3	3.3
	69	4	13.3	13.3	13.3
	75	4	13.3	13.3	13.3
	81	6	20.0	20.0	20.0
	88	6	20.0	20.0	20.0
	94	3	10.0	10.0	10.0
	100	5	16.7	16.7	16.7
	Total	30	100.0	100.0	100.0

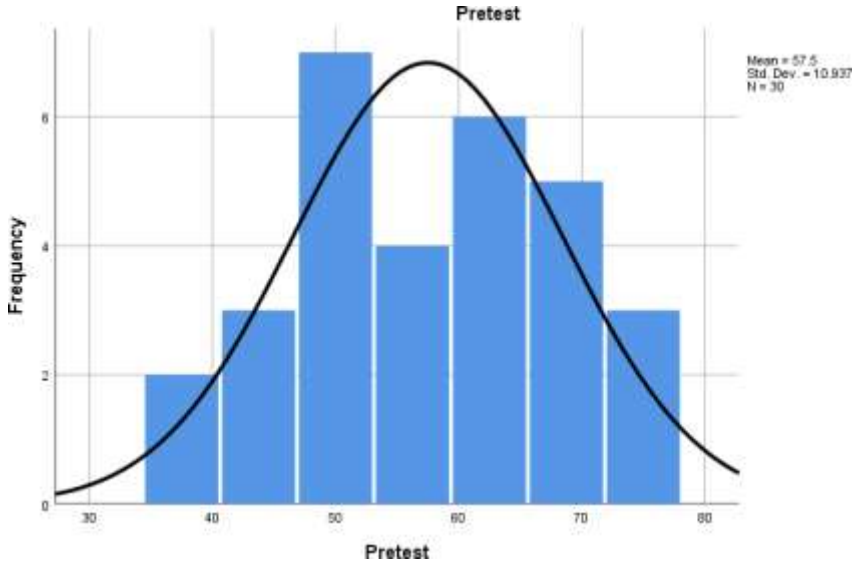

Figure 1. *Grafik Pretest and Postest*

This test aims to determine whether the data obtained is normal. In this data testing, the researcher used SPSS 26, with the following results:

Table 4. *Tests of Normality*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.154	30	.069	.945	30	.122
Posttest	.116	30	.200*	.948	30	.154

It can be concluded from the normality test results that the pre-test data had a significance value of 0.122 and the post-test data had a significance value of 0.154, both greater than 0.05. This indicates that the Shapiro-Wilk test results for the pre-test and post-test data of class V.C are normally distributed.

A paired samples t-test was used to examine whether traditional rope jumping games had an effect on the long jump ability of fifth-grade students at SD Negeri 121 Palembang. This test is appropriate for comparing the means of two related samples. A significant difference is indicated if the Sig. (2-tailed) value is less than 0.05 (H_0 is rejected), while a Sig. (2-tailed) value greater than 0.05 indicates no significant difference (H_a is accepted).

Table 5. *Paired Samples Test*

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pretest - Posttest	-25.417	7.142	1.304	-28.083	-22.750	-19.493	29	.000

Based on the results of the Paired Samples T-Test, the Sig. (2-tailed) value was 0.000, which is less than 0.05 (H_0 rejected). This indicates a significant difference between the pre-test and post-test scores, suggesting that the intervention had a measurable effect on the students' long jump ability. In other words, the traditional rope jumping game significantly influenced the long jump performance of fifth-grade students at SD Negeri 121 Palembang.

The purpose of this study was to examine whether traditional rope jumping games affect the long jump ability of class V.C students. Statistical data showed that pre-test scores ranged from 38 to 75, while post-test scores ranged from 75 to 100. The standard deviation was 10.937 for the pre-test and 11.942 for the post-test. The mean scores increased from 57.50 in the pre-test to 82.52 in the post-test, demonstrating a clear improvement in students' long jump skills after participating in the traditional rope jumping activity.

Normality tests using the Shapiro-Wilk method confirmed that both pre-test (Sig. = 0.122) and post-test (Sig. = 0.154) data were normally distributed, as both values exceed 0.05. The t-test results further confirmed the presence of a significant effect, as the Sig. (2-tailed) value of 0.000 is below the 0.05 threshold, leading to the rejection of H_0 and acceptance of H_a. This demonstrates that traditional rope jumping games effectively improve the long jump ability of fifth-grade students at SD Negeri 121 Palembang.

Traditional rope jumping games serve as a practical tool to enhance students' long jump skills, improve learning outcomes, and motivate regular practice. Previous studies on traditional games have shown that playful activities can significantly support learning and skill development. Such games are not only entertaining but also serve as an alternative method for physical education, suitable for students in elementary, middle, and high schools. Traditional games help develop physical and mental abilities, motor skills, and teamwork, which ultimately contribute to better learning outcomes and athletic performance.

Discussion

This study aimed to evaluate the effect of traditional rope jumping games on the long jump ability of fifth-grade students at SD Negeri 121 Palembang. The findings suggest that the intervention had a significant impact on improving students' motor skills, specifically in their long jump performance.

From the descriptive statistics (Table 1), we observe that the pre-test scores ranged from 38 to 75, with a mean score of 57.50 and a standard deviation of 10.937, indicating moderate variability in students' performances before the intervention. After participating in the traditional rope jumping games, the post-test scores ranged from 75 to 100, with a higher mean of 82.92 and a standard deviation of 11.942. The increase in mean scores from pre-test to post-test shows a notable improvement in students' long jump abilities, reinforcing the hypothesis that rope jumping exercises help improve motor skills.

Normality tests using the Shapiro-Wilk method (Table 4) showed that both the pre-test ($p = 0.122$) and post-test ($p = 0.154$) data were normally distributed, as both significance values are greater than 0.05. This is an important factor because it validates the use of parametric tests, such as the paired samples t-test, to analyze the data.

The paired samples t-test results (Table 5) confirmed that there was a significant difference between the pre-test and post-test scores (p = 0.000). This value is below the 0.05 threshold, indicating that the traditional rope jumping intervention had a measurable effect on students' long jump performance. The pre-test mean score of 57.50 increased to a post-test mean of 82.92, demonstrating that the intervention effectively improved students' gross motor skills, specifically in the context of the long jump.

In conclusion, the study provides strong evidence that traditional rope jumping games positively impact the long jump ability of fifth-grade students. The paired samples t-test confirmed a significant improvement, supporting the argument that traditional games, like rope jumping, can serve as effective tools for enhancing physical education outcomes. Previous research has similarly found that traditional games can promote the development of gross motor skills and coordination, especially in elementary school children (Andini, Syamsudin, & Ulansari, 2022; Anggraini et al., 2018).

These results align with existing literature, which suggests that traditional games can be incorporated into educational settings to enhance not only physical fitness but also teamwork and social interaction among students (Bire et al., 2022; Jafarzadeh & Azizi, 2021).

4. CONCLUSION

Based on the results of this study, it can be concluded that traditional rope jumping games significantly improve the long jump ability of fifth-grade students at SD Negeri 121 Palembang. This intervention is an effective and practical method for enhancing students' motor skills, particularly in the context of physical education at the elementary level. Traditional games can serve as both a learning tool and motivational strategy, supporting students' physical development and fostering enjoyment in physical activity.

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